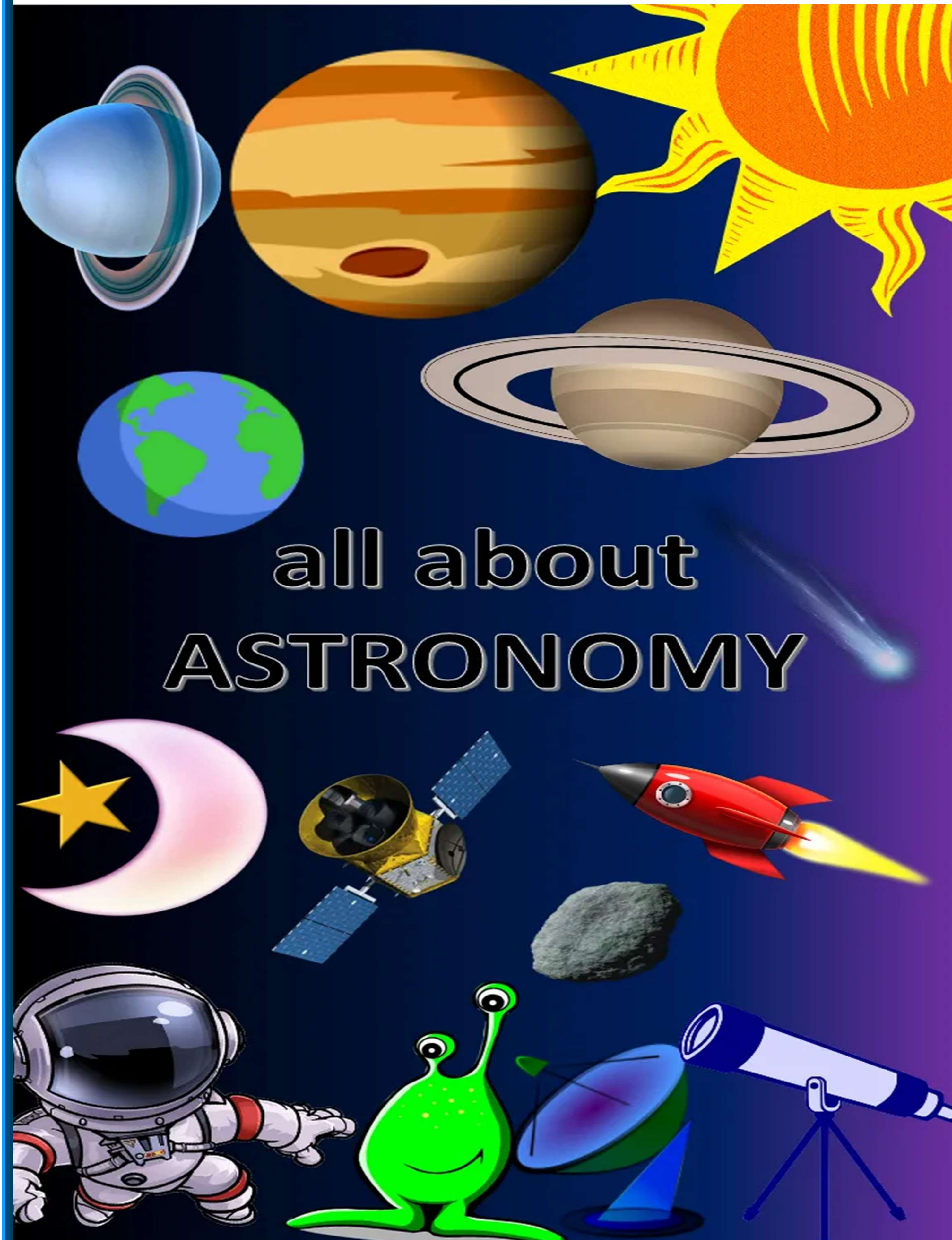


all about ASTRONOMY

1) Planets

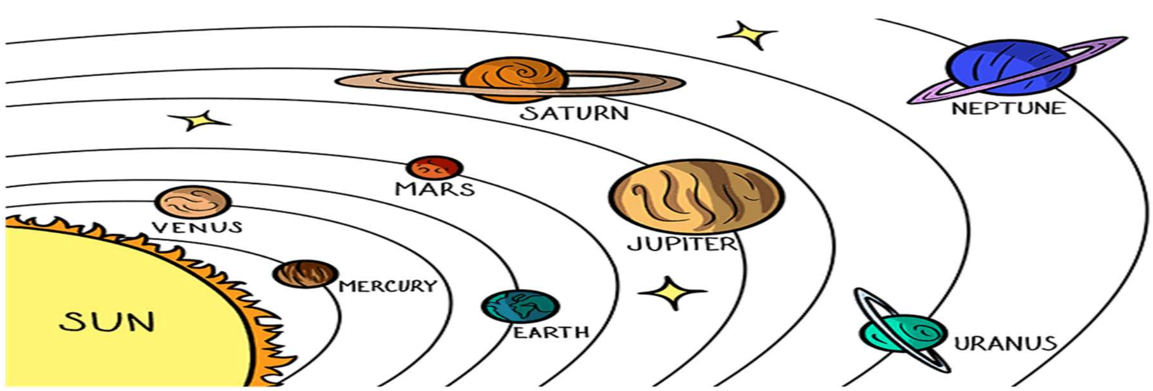
Planets are heavenly bodies that orbit a star. There are many more planets than stars. Planets can be of different size and temperature with different force or gravity.

Planets are declared as planets if they have these things: They should be orbiting a star, they should have enough gravity to make them round and they should be able to clean their surroundings. If they do not have even one of these things, they are not a planet, they may be a dwarf planet or other objects.

1.1) solar system

There are many star systems around the universe and in galaxies. Solar system is a group of planets and other heavenly bodies that orbit or revolve around a star.

Our solar system



Our solar system has 8 planets. We live on Earth. The hottest planet is Venus and the coldest is Uranus. The largest is Jupiter and the smallest is Mercury. The asteroid belt is between Mars and Jupiter. The nearest to the Sun is Mercury and the furthest is Neptune. There is a dwarf planet, Ceres that hides in the asteroid belt.

Mercury 

Mercury is the smallest planet. It is also the nearest planet to the Sun. Although it is the closest planet to the Sun, it is not the hottest planet. Daytime in Mercury can reach up to 300°c and at night up to -300°c. Since it's size is small, it's gravity is weak. It has no moons. It is grey in colour.

Venus 

Venus is the second closest planet to the sun. Venus is also known as earth's twin, as its size is the same. It is the hottest planet because its atmosphere is filled with carbon dioxide. Venus's clouds are made with sulpheric acid. Venus is also covered with lava and magma. Its gravitational force is almost the as that of earth. It is yellow in color of the clouds. It has no moons.

Earth 

Earth is our home planet. It is the only planet that has lives in it. It is the third planet from the sun. Earth was a fireball before. It has one moon. There are three layers of the earth, they are; hydrosphere, lithosphere and atmosphere. It is in the habitable zone. It's surface covers 71% water and 29% land. Its average temperature is 15°c.

Mars 

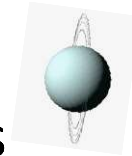
The closest planet to the earth is Mars. It is the fourth closest planet from the sun. Mars is also known as “The Red Planet”. It has two moons; Phobos and Demos. It is the second smallest planet after Mercury. It is named after the Roman god of war because it seems like it is angry. Even though it may look hot, Mars is actually pretty cold with temperature of 27°c during daytime and can be -133°c during the night.

Jupiter 

Jupiter is a gas planet made out of hydrogen and helium. It is the largest planet of our solar system. It has ninety-two moons, the planet with the highest number of moons. It has four rings. Jupiter has a spot called ‘the Red Spot’. Jupiter experiences a lot of tornadoes and hurricanes. It is near the asteroid belt.

Saturn 

Saturn is the second largest planet of our solar system. Saturn is the planet with the greatest number of rings. It has seven rings. It is also made up of hydrogen and helium. It is the most beautiful planet of our solar system. It is named after the roman god of farming. Saturn’s rings are made out of dust particles and ice.

Uranus 

Uranus is the coldest planet of our solar system. It is the third biggest planet in the solar system. It has twenty-seven moons. It is also known as ‘Ice Giant’. It is made up of water, methane and ammonia fluids above a small rocky center.

Neptune 

Neptune is the farthest planet of our solar system from the sun. It is the fourth largest planet. It is made up of water, methane and ammonia. It is also an ice giant. It has fourteen moons and six rings.

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1.2) Dwarf Planets

Dwarf planets are planets that are small, which orbit a star. There are five dwarf planets in our solar system, they are; Ceres, MakeMake, Haumea, Eris and Pluto. Four of them are in the kuiper belt and one of them in the asteroid belt.

Ceres 

Ceres is the smallest dwarf planet. It was once known as an asteroid because it is too small. It is located in the asteroid belt, it is the closest dwarf planet from the sun. It is the largest object in the asteroid belt between Mars and Jupiter.

MakeMake 

MakeMake is the second closest dwarf planet from the sun. It revolves around the sun slowly. It takes 350 earth days to revolve around the sun. It was formed 4.5 billion years ago. It has only one moon, which is known as Mk2. It is a very cold dwarf planet with the temperature of -406 °F or -243°C. It was discovered around Easter so is named after a god from the Easter Island.

Haumea 

Haumea is the third dwarf planet. It is oval in shape. It rotates very fast. When it rotates, it looks like a rugby ball. It has two moons, they are; Namaika and Hilaika.

Eris 

Eris is one of the largest dwarf planets in our solar system. It is about the same size as Pluto but is three times farther from the sun. It orbits the sun in a weird way.

Pluto 

Pluto is one of the largest dwarf planets. It contains ice volcanos. It was a planet before. Its snow can be red because of the atmosphere. Days on Pluto are very beautiful but nights are very cold with temperature of almost -233°c. Pluto has five moons, one of the moon is as big as Pluto itself that Pluto orbits the moon as well. It was changed to dwarf planet because it does not have a protective layer to protect itself and also it orbits in other planet's orbit.

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1.3) Unique planets

Unique Planets are Planets that are unique🙂.

J1407b 55 Cancri E



Earth? No! Kepler 452b.

Kepler 452B

Kepler 452B is called the earth's cousin because it is in the habitable zone and may contain life. It has a lot of volcanos. It also has some amount of water. It is a little bigger than the earth, it is 1.5 times bigger than the earth. It is many light years away. It orbits an unnamed star.

Super Saturn

Super Saturn has thirty-seven rings. Its real name is J1407B. Its ring is bigger than the planet itself. The ring is so big that it is larger than Jupiter or even the sun. It is 434 light years away from the earth.

HD 189773b (Glass Planet)

HD 18977b is sixty two light years away from the earth. It is a little bigger than Jupiter. It is blue in color. On this planet it rains glass. Its temperature is 900°c.

55 Cancri E

55Cancri E has diamond and graphite. It is close to the constellation Cancer. Its size is double that of earth. It orbits a star called 55 Cancri A. Its diamond costs around 29Nonilion Dollars. It is 40 light years away. Its temperature is 2200°c.

Gj504 B (Pink Planet)

Gj504 B is also known as the pink planet. It is just 100-200 million years old. It is just like Jupiter, a gas giant except that it is 4 times bigger. It has pink gas which makes it glow. It is 57 light years away from the earth and its temperature is 237°c.

Gliese 1214 b

Gj1214b is also known as ocean planet. It was discovered in 2009 A.D. it is in the constellation of Ophiuchus. It is full of water. It is 40 light years away from the earth. It orbits a star named Gj1214. After all, where there is water there may be life. Its orbiting time is just 38 hours!

TrES-2b

This planet TrES-2b reflects only 1% of the light that hits it, hence is named the dark world. It appears darker than black paint. Its size is a little bigger than Jupiter. Its temperature is 980°c. it is 750.2 light years away from the earth. It lies in the Draco constellation.

Wasp -12b

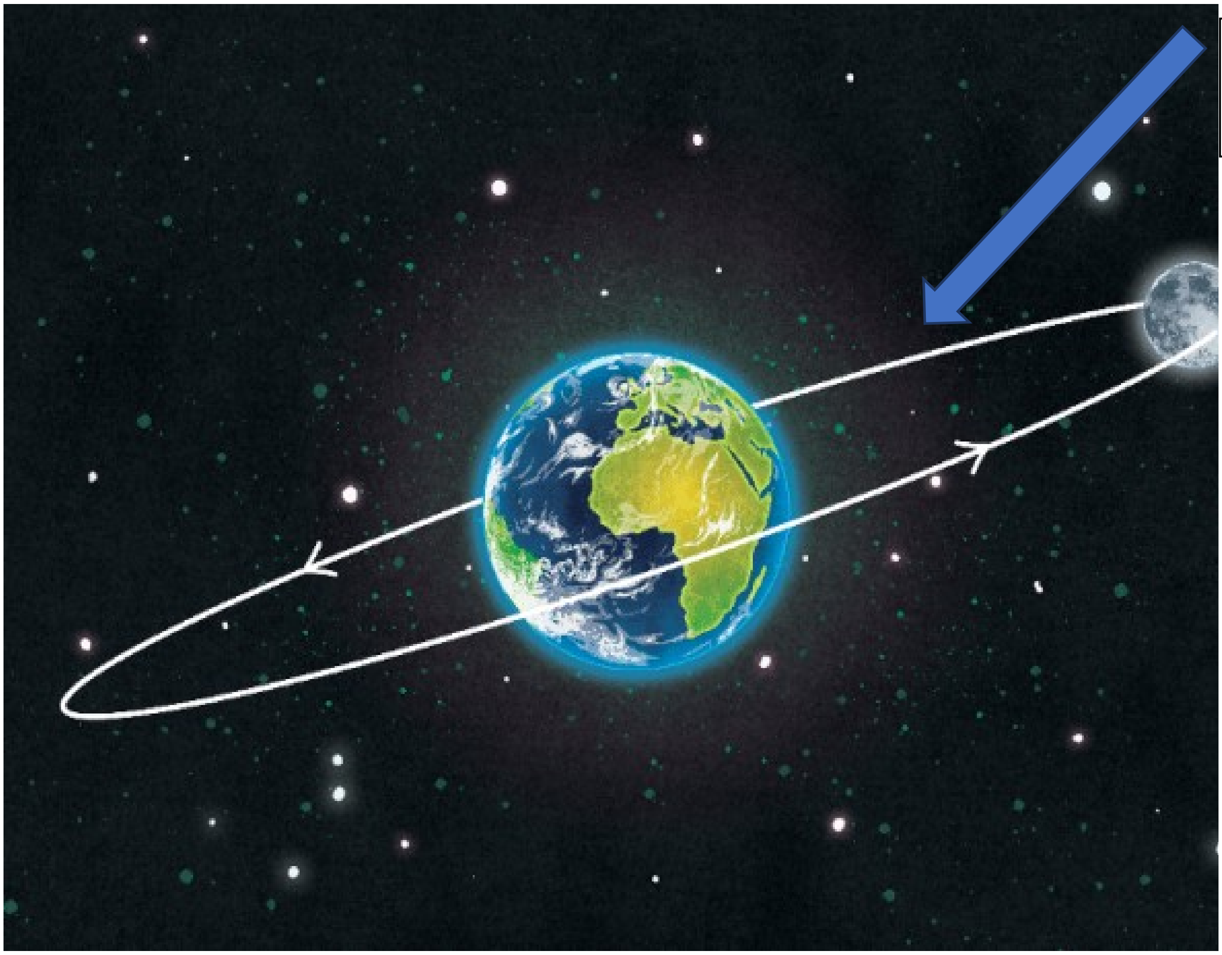
This planet is oval/ egg shaped. It is just about the same size as Jupiter except that it is so near to its parent star that the star is consuming parts of it. It is very far away, roughly 1200 light years from the Earth. It is a very hot planet; its temperature is almost 2,210°c. it is located in the constellation Augria.

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1.4) Orbits

Orbis are the place where the planets, moons, dwarf planets or anything which revolves a star or planets. In celestial mechanics, an orbit is the

curved trajectory of an object such as the trajectory of a star or of natural satellite around a planet or of an artificial satellite around one object of position in space such as a planet's moon, asteroid or Lagrange point.



This is an orbit.

2) Space Debris

There are many objects in the universe, such as: meteoroids, comets, asteroids, ice particles, dust and many more. Here we are going to tell you about some.

2.1) Asteroids

An asteroid is a minor planet of the inner solar system. Sizes and shapes of asteroids may vary significantly, ranging from one meter rocks to a dwarf planet like ceres, which reaches up to 1000 Km in diameter. They are rocky metallic or icy bodies with no atmosphere. Did you know? Asteroids can be planets and they can have moons!



This is one of the asteroids

2.2) Comets

Comets are made out of ice, dust and frozen gases. They are a size of a city. When comets come near the sun, some ice particles melt and due to the sunlight, it reflects light forming a beautiful tail view. Did you know? They actually have two tails a gas tail and an ion tail. In the cort cloud, there are about one trillion estimated comets. The famous Halley comet can be seen in every 75 or 76 years.



Beautiful, right?

2.3) Meteoroid

When the molecules around the meteoroids rub against them, they start burning. When this burning meteoroid passes through the earth's atmosphere, it is called a meteor. When the meteor collides on the earth's surface, it is called meteorite. Did you know? Meteors are shooting stars. Some meteors burn brighter than the rest, often known as fireball. Some fireballs appear more brighter than Venus. There is a small percentage of meteoroids that follow a particular path to the earth's atmosphere and back out again. They are called grazing fireballs. Asteroids are parents of meteoroids.



This is a fireball meteor

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3) Satellites

A satellite is any celestial body that orbits a bigger object in space. Example, the earth orbits the sun and moon orbits the earth. There are 2 types of satellites, natural and artificial satellites. Here, we are going to talk about them.

3.1) Natural satellites

A natural satellite is an astronomical body that orbits a planet, dwarf planet or small solar system body. A specific type of natural satellites is known as a moon. Our planet has 1 natural satellite, named "The Moon".
There are about 226 known natural satellites in our solar system. A fun fact: A planet has about 10,000 times more mass than its natural satellite. Did you know? Natural satellites can even have their own natural satellite and they orbit each other! Space is strange, very strange!

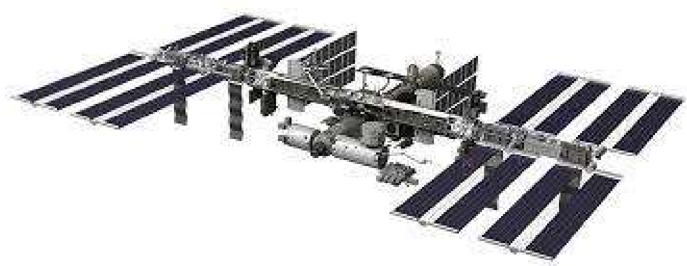


This is our moon.

3.2) Artificial Satellites

A satellite which is sent to space by humans to collect information about space is known as an artificial satellite. There are many satellites launched in space. Satellite have many uses, which includes communication relay,

weather forecasting, navigation(G.P.S), broadcasting and more. The first launched satellite in space was in 1957, named sputnik 1. Then, after that, many satellites were successfully launched. Did you know? The furthest traveled artificial satellite, voyager 1, is so far that a radio signal that travels at the speed of light takes approximately 20 hours 33 minutes to reach it and takes 20 hours 33 minutes to get a signal back! Strange, right?



This is the International Space station.

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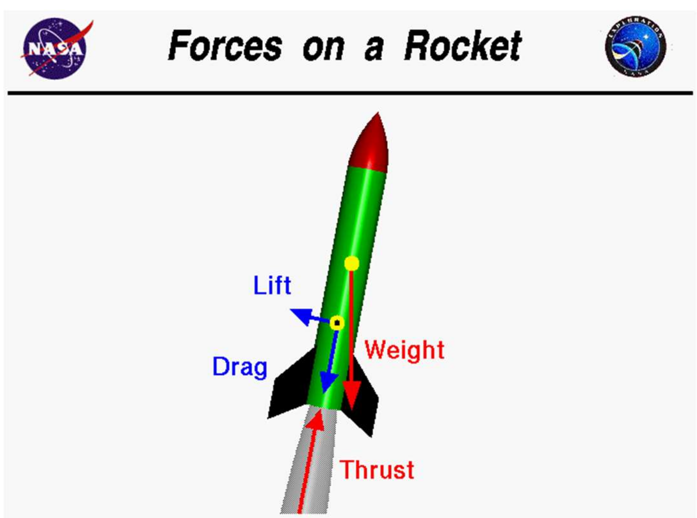
4) Rockets

Rockets help astronomers to go to space and land on different planets or moons. Rockets fly due to force. The 1st rocket launched into space was Vostok 1. There are many rockets launched, but most of them fail. Different types of rockets have been launched. Rockets can be of different size, shapes and colors. They have engines that make them work and they need great force and effort to go high into space. Some of the rockets are: Vostok 1, Apollo 11, PSLV-XL C25, and many more. The other name for rockets is spacecraft.



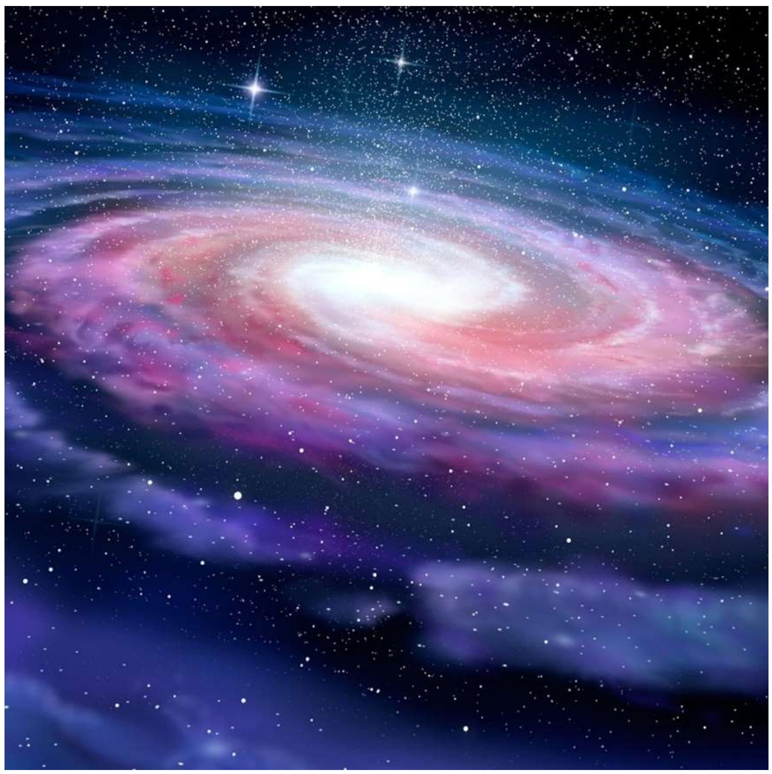
4.1) Force

The rocket needs force to fly. There are two forces acting on a rocket at the moment of liftoff: thrust pushes the rocket upwards by pushing gas downwards in the opposite direction. Weight is the force due to gravity pulling the rocket downwards to the center of the Earth. For every kilogram of mass, there is 9.8 newtons of weight. Force was discovered by Sir Isaac Newton using his calculation, mass x acceleration = force. In flight, a rocket is subjected to 4 forces: weight, thrust, and the aerodynamic forces, lift and drag. The magnitude of the thrust depends on the mass flow rate through the engine and the velocity and pressure at the exit of nozzle. The magnitude of the weight depends on the mass of all the parts of the rocket. The weight force is always directed towards the center of the earth and acts through the center of gravity, the yellow dot on the figure. The magnitude of the aerodynamic forces depends on the shape, size, and velocity of the rocket and on properties of the atmosphere. The aerodynamic forces act through the center of pressure, the black and yellow dot on the figure.



5) Galaxy

Galaxies are a group of stars, solar systems and even a black hole in some. There are billions of galaxies in our universe. Our galaxy's name is "The Milky Way". There are many galaxies like Andromeda, Milky Way, NGS 4507, Cosmos Redshift 7, etc. They can be of various sizes and shapes. Here is a picture of Our galaxy, the Milky Way:



And here is a picture of andromeda:

Picture of Andromeda



I know it may just look like a spiral, but they are huge groups of stars, solar systems, etc. This is an important topic about space, so we need to learn about it. Turn to the next page and learn about Milky way and other galaxies.

5.1) Milky Way

Milky way is the galaxy that contains our solar system, with the name describing the appearance of it from the surface of the Earth: a hazy band of light seen. In the vastness of the universe, you will find a hazy spiral ring of white light that looks like spilled milk across the sky. This spiral ring isn't milk of course but a galaxy to which the ancient Romans called the band vi lacteal, which means milky road or milky way. The milky way is a galaxy. Astronomers believe that our milky way galaxy is approximately 13.6 billion years old and it is so big that light takes 100,000 years to cross from one side to the other. The center of the milky way galaxy is tough to see due to clouds of gas that blocks our view. But scientists believe that it has super massive blackhole called Sagittarius, A star that swallows anything that crosses it. And it is very much possible that this blackhole may be the source of gravity that holds the galaxy together. The milky way is part of a cluster of galaxies near each other that is called the local group made up of thirty galaxies.

Did you know, that our milky way galaxy is as old as the universe itself? The age of the universe is about 13.7 billion years and our milky way has been around for 13.6 billion of those years.

5.2) Other Galaxies

There are between 100 and 200 Galaxies in the Universe. Some of the Galaxies are: Milky way, Andromeda, Triangulum, Whirlpool, Tadpole, Messier 63, Sombrero, Cart- wheel, Messier 81, Black eye, Large Magellanic cloud, Messier 82, Messier 83, Hoag's object, Mayall's object, Pinwheel, Cosmos Redshift 7, Comet, Malin I, Messier 110, Maffeil 1, Eso306-17, Cygnus A, Andromeda 1, Babyboom, Messier 99, Messier 87,

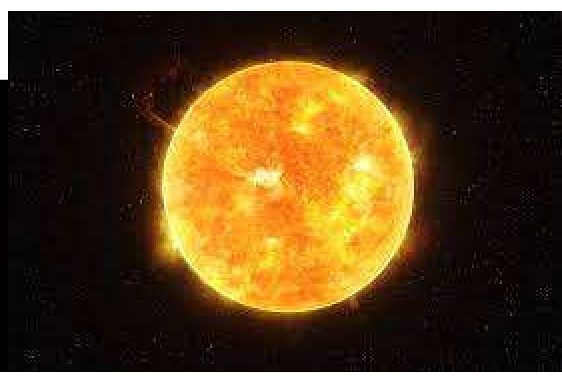
Sagittarius, Dwarf Spheroidal, Canis Major, Overdensity, AM0644-741, Wolf- Ludmark – Melotte, Centraurusa, NGC4565, Sculpter Dwafr, Sculpter, Circinus, NGC4151, etc. There are three biggest galaxies in the universe. They are Milky way, Andromeda and Triangulum Galaxies.

5.3) Stars

There are uncountable stars in the universe. The biggest star of the galaxy is UY Scuti. It is 1700 times bigger than the Sun. The sun is also a star. There are three types of stars, they are: The red Dwarf star, The yellow star and the blue star. The red dwarf stars are very small and are the coldest stars in the universe. The yellow stars are medium in size and medium in temperature. The blue stars are very big and are the hottest. These yellow stars much bigger than the Sun. The biggest star in the universe is the Stephenson.



Red dwarf stars(coolest)



Yellow stars(our sun's category in stars)



Blue stars(the hottest)

5.4) Nebulas

Nebula is the beautiful dust and clouds that are colorful, they are made after a star dyes. It is also formed by gas, dust and other materials clumping together to form denser regions, which attracts further matter and eventually dense enough to form stars. They might look very beautiful but it is very dangerous as it means that a star has exploded into supernova and turned into gases. Some of the nebulas are: Glowing eye, bow tie, ghost of Jupiter, blinking planetary, dumbbell, Ring, Exkino, little ghost, Medusa, Helix, little dumbbell, owl, butterfly, Headphone, Soap bubble, skull, oyster, blue flash, fetus, blue snowball soccer ball, southern crab, Red spider, twin jet, Saturn, 8 burst, spirograph, spare tire, retina, stingray, spiral planetary, Ant, shaphley 1, engravel, Fleming 1, Robins egg, box nebula, etc.

There are believed to be about 20,000 objects called the planetary in the milky wat galaxy. The biggest nebula is tarantula nebula. Nebula's temperature can be -458°F. The brightest nebula is the carina nebula. Here is the picture of Orion nebula and butterfly nebula:

Orion Nebula	Butterfly Nebula
	

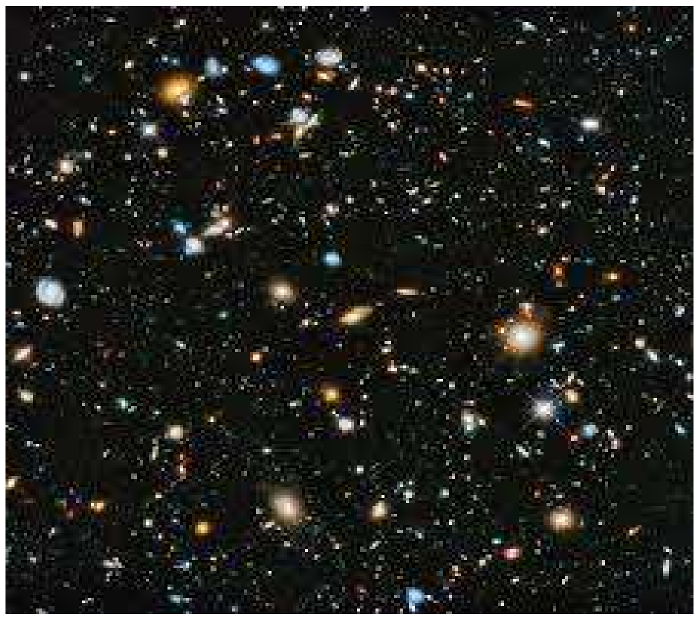
6) Space

Space is the three-dimensional continuum containing position and direction. It consists of 4 dimensions i.e., length, breadth, height and time. The outer space is the region beyond planet's atmosphere. The line separating the planet's atmosphere and outer space is called the Karman line. It consists of multiverse, universe, galaxies and so on. Now, we are going to tell you about them.

6.1) Universe

The universe is 13.6 billion years old. The word universe is derived from an old French word, Univers, which finds its root in the lattin word Universe, which means combined into one. Universe is that only, everything combined into one mega cosmic system, including all of space, all of matter, energy, time itself and all of us. The universe is thought to be made of three types of substances namely: 5% normal matter, 27%dark matter and 68% dark energy. Out of these, normal matter consists of the atoms that make up stars, meteoroids, planets and everything we see. We exactly don't know the spatial size of the universe. However, the observable universe, which is the ball shaped region is estimated to be around 93 billion light years in diameter. The size of the universe is continuously expanding since its birth in a phenomenon known as inflation. In the 1920s, astronomer Edwin Hubble discovered

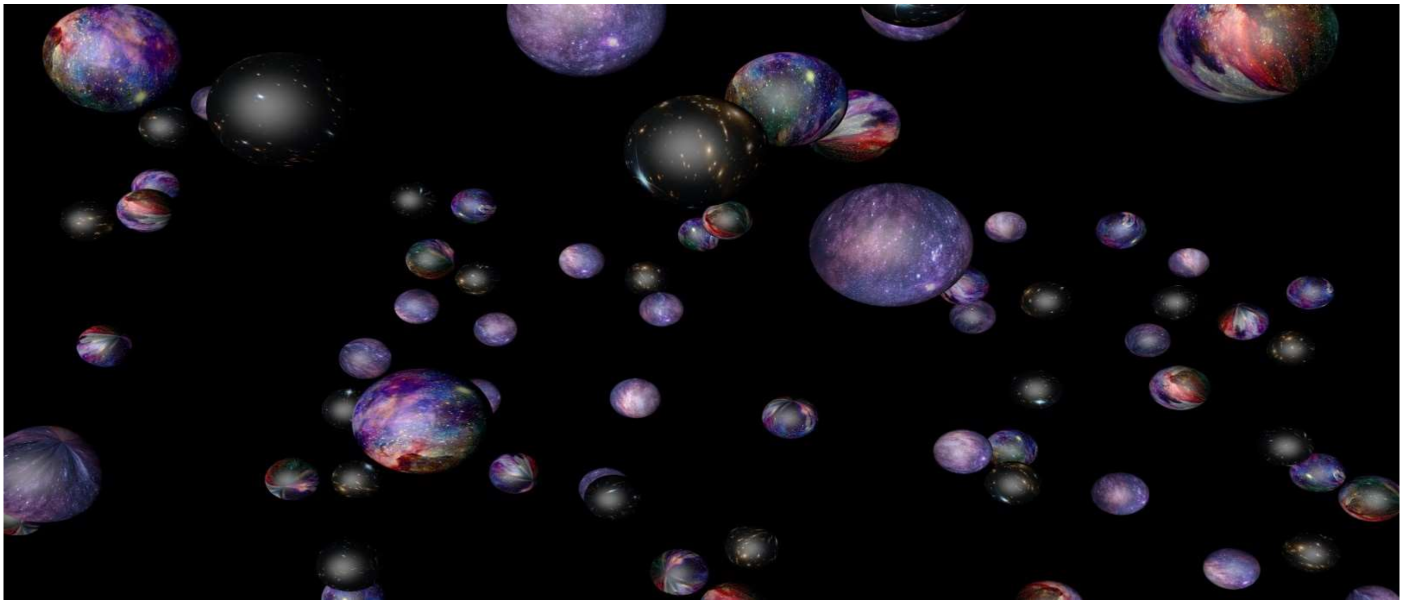
that the universe was not static, rather it was expanding, as the galaxies are moving further apart from each other and the space between them grows. So now the area of space we see is billions of times bigger than it was when the universe was very young. But it is theorized that this expansion will not go forever. Did you know? Milky way contains 100 billion stars and the observant galaxy has 100 billion galaxies? Just imagine how many stars would there be!



Picture of observable universe

6.2) Multiverse

Scientists think that multiverse are different universes outside our universe, but they are not sure about it, so it is a theory for now. But, maybe in the later years, we may find it out, if it exists or not. In the theory, people think that the big bang happens in the multiverse, which eventually formed the universe and everything else. Philosopher William James invented the theory of Multiverse. Here is the picture of how scientists think multiverse looks like.



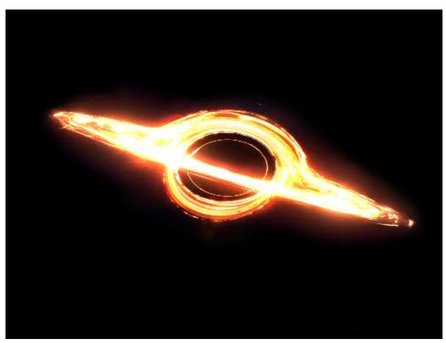
Scientists have also made a theory that, there is nothing but vacuum outside the multiverse. Scientists also say that every universe are expanding from their birth. But as we all know that it is just a theory. Together, these universes are presumed to comprise everything exists: the entity of space, time, matter, energy, information, physical laws and constants that describes them. The different universes within the multiverse are called parallel universe, other universes, alternate universes on many worlds. There is unobservable space outside the universe.

6.3) Black Holes

Black holes are huge holes with a heavy mass which sucks everything around it. There are many black holes in our universe. There are about 10 million to one billion black holes in the milky way galaxy. The biggest black hole is Ton 618. Scientists say that there might be a huge black hole in the middle of the milky way galaxy named Sagittarius. A black hole is formed when the core of a star collapses and the star explodes.

Therefore, we can say that a black hole is born when a star dies. When the massive star reaches end of life, its core starts running out of fuel. The core is no longer able to hold the star back, resulting in its collapse. This gives birth to a mini black hole. With gravity running coiled inside it, the black hole starts eating up everything that is left of the star. And it all happens in just a few milliseconds. Even before the star can realize what is happening to it. It explodes, the explosion releases a tremendous amount of energy even more than our sun can produce in its entire lifetime! Any stuff that gets too close to the blackhole gets sucked in because of the SUPER humongous gravitational pull. So, nothing can escape a blackhole, not even light. The nearest blackhole to the earth is 1600 light years away. But, there is a good NEWS, our sun can't be blackhole as it mass is very less than most of the stars.

Here is a picture of a blackhole.



Scientists have also made a theory, that if black hole exists, then white hole must also exist. But they have not found it yet. They say that white holes are the death of black holes. So, after black hole dies, white holes form and throw away everything it has swallowed by throwing in a BANG. Scientists also think that the big bang also could be a white hole. But they have no proof as yet and it's just a theory. The only place we can find a white hole is in just paper.

6.4) Super Nova

A Super Nova is formed when a star gets burst. It turns into Nebular after being burst. People believe that our sun will also be super Nova. But there is more chance that it won't turn into Super Nova. During a Super Nova, gamma -ray burst can also occur. It looks very beautiful like colorful dust cloud. Here is a picture of Super Nova.



Stars, they come in different sizes and shapes, like the blue giant, the red giant, red supergiant. Even our sun is a type of star called G2V yellow Dwarf. Despite the difference, most of the stars end with super nova. So, a super nova is a massive explosion that takes place at the end of star's life cycle. In other words, it is the death of a star. A super nova occurs when there is a change in core or the center of a star. This change can happen in two different forms both resulting a super nova. First, let's look at a super nova in a binary star system. During the process, one of the stars, a carbon oxygen white dwarf, takes matter from its partner star, eventually, the white dwarf gathers so much matter that makes it difficult to digest and causes the star to blast, resulting a super nova. In the single star system, the star runs out of nuclear fuel, some of its mass flows into the core and eventually the core gets so heavy that it can't withstand its

own gravitational forces and it becomes a nuclear time bomb. Finally, the core collapses, and all the matter and radiation blast out. But not all stars end with a super nova. Even our own sun is a single star but it does not have enough mass to become a super nova or else it would have a significant threat to our solar system.

7) Extras

In this chapter, there will be telescopes, aliens, facts and gravity.

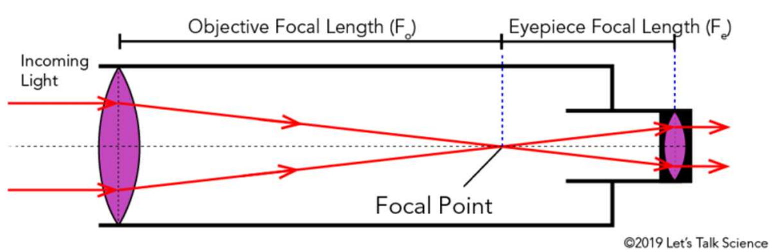
7.1) Telescopes

Telescopes help us to see stars, galaxies, planets, etc. There are two main types of telescopes; they are: refractors and reflectors. The other type is Schmidt Cassegrain's. the early telescopes focused light using pieces of curved clear glass called lenses. However, most telescopes today are in the shape of a mirror or lens in a telescope concentrates light. That light is what we see , we see what we look at through the telescope. The no. 1 telescope is the Hubble telescope. All the stars, galaxies, planets, etc are mostly found by telescope. Telescopes can cost upto $ 100 to $ 10,000.

Here is a picture of a telescope and how it works.



Telescope



How it works.

7.2) Gravity

Gravity is the thing that keeps us here on Earth and keeps the Earth orbiting the Sun. It is an invisible force that pulls you back to the earth. Sir Isaac Newton, a well-known scientist, discovered gravity about 300 years ago. The story is that, Newton saw an apple fall from a tree towards the ground. At first, he thought why didn't it go up?? Then he realized that there was a force that made it fall on the ground. He did a lot of research, and found out that force, then he named it GRAVITY. Did you know? Every object that has mass experiences gravitational pull towards each other. The force of the pull depends on the mass of the object. This is how the sun's gravitational pull keeps the planets and their orbits in place. The earth also has gravitational pull which keeps the moon orbiting it and does not float away. Did you know? The tides of the sea and oceans happen due to the gravitational pull of the moon. Amazing, isn't it??

7.3) Aliens/ Creatures

Some people believe that aliens exist outside our solar system. Of course, it was hard to believe that they were real. But after people found out planets like earth, they believed that such creatures may exist. For instance, Trappist1E is an exoplanet, within the habitable zone of its system and sine people found it, they have constantly searching for life in there. We ourselves are aliens to other creatures from other planets. Of course, we are not aliens to ourselves and we also think that other creatures are aliens, if we ever happen to meet them by chance. Some people think that we live in area 61 of space, and in area 61, there are actually aliens. Well, all this is just a theory but in the near future, we may really find them.

7.4) Some Facts

Here are some facts about space:

1. There are moonquakes on the moon
2. Earlier during solar eclipse, Roman people believed that, the dragon ate the sun.
3. Most of the stars we see at night are not even stars, they could be either planets or satellites, etc.
4. Stephenson star was named after Stephen Hawking
5. There are twelve people who have stepped on the moon.
6. We can see colours because of light. That is why, when there is no light, we see nothing but dark colour only.
7. The big red spot of Jupiter is three times bigger than the earth.
8. Water is not very rare and is very common in space.

9. Every planet, which is in the habitable zone, can have life in it. It is either already destroyed or yet not formed.
10. It takes 1000s of years for one signal to reach another habitable planet and 1000s of more years to receive reply.
11. Just like earth, there is a planet called earth 2.0, which we could survive on.
12. The trappiest system is so close to its parent star that if we look at the sky in one of the planets, we can see all the planets huddled tightly in their system.
13. Stephen Hawking gave the theory of black holes.
14. UY Scuti is the largest star of the galaxy and Stephens is the largest star of the universe.
15. Yuri Gagarin was the first person to reach the Karman line, but he died as soon as he got there.
16. Sun sets on Mars are blue.
17. Sun rises on Pluto makes the land red.
18. The sun's actual colour is white.
19. The reason why we see the sun's colour as red or orange or yellow is because of the earth's atmosphere.
20. There is no water in any planets except the earth and Mars in our solar system.
21. Earlier, the ancient Romans believed that comets brought bad luck
22. Neil Armstrong was the first person to land on the moon.
23. UY Scuti is 1,700 times bigger than the sun.
24. The shooting stars are actually meteors.
25. The closest star from earth after the sun is 1.4 light years away.
26. Astronauts must wear white- or orange-colored suits.
27. Ton 618 is the third largest black hole of the universe.

28. UY Scuti is located near the middle of the milky way galaxy.
29. Ton 618 has the mass of about 66 billion solar masses.
30. The largest black hole in the universe is Phoenix A*
31. Phoenix A* can contain 42 small galaxies
32. Phoenix A* is located at the middle of phoenix cluster.
33. Phoenix A* comes under ultra massive type of black hole.
34. Phoenix cluster has twice the mass of everything in Triangulum.
35. There are 8 phases of the Moon.
36. The average distance between 2 asteroid is 1000 km.
37. Kelt-9b is the hottest planet of the universe with average temperature of 4315.556°c.
38. Our Sun comes under the type G2V yellow dwarf.
39. Orbits are an imaginary line.
40. The biggest planet in the universe is HD 100546
41. Kepler 452b is Earth's cousin.
42. Stephenson is 2,150 times bigger than the Sun
43. Stephenson is known as balloon, because it is only 17 times heavier than the sun.
44. One type of supernova revealed the scientists that the universe is expanding
45. An apple had n't fallen upon Isaac Newton's head, he just made it up
46. There are one trillion stars in andromeda.
47. When astronauts reach earth from the space, they feel immense force, which makes them feel squishy, so they do regular exercise to reduce its effect.
48. NASA is trying to create life on the moon.
49. SpaceX is trying to create life on mars
50. To reach Mars, it will take 78 months

51. There is a robot in Mars, which is truly alone and is about to die.
52. I O moon is the biggest moon of Jupiter
53. IO moon looks like a pizza.
54. Titan is the biggest moon of Saturn.
55. Venus is the only planet that spins backwards
56. Uranus is the only planet that spins sideways
57. Space is completely silent.
58. Scientists believe that there are two reasons of Venus spinning backwards: 1) it used to spin just like other planets, it stopped and started spinning backwards, 2) it spins like other planets but somehow it is upside down.
59. Venus was seen on 26th March 2023.
60. Astronomy has its own unit, A.U., which is 14,959,7871 Km.
61. One light year is about 9 trillion Km.
62. Only 5% of the Universe is visible to us.
63. Every star we see at night is bigger and brighter than the sun.
64. Neutron stars can spin 600 times per second
65. In 3.75 billion years, Milky way and Andromeda will collide.
66. The sun's mass takes up 99.8% of the solar system
67. There is a volcano on Mars, that is three times the size of Mount Everest.
68. Jupiter is actually a failed star.
69. There are more stars in the universe than the grins of sand on the earth
70. Most galaxies have a central black hole
71. Astronauts grow taller in the space
72. Neil Armstrong's foot prints on the moon can last for 100 million years

73. Earlier, people thought the earth was the center of everything
74. Uranus is the most unique planet of the solar system
75. All American astronauts need to be able to read Russian.

8) History

There are many theories related to the history of astronomy. The ancient Greeks developed astronomy, which they treated as a branch of mathematics to highly sophisticated level. The documented records of systematic astronomical observation lead back to the Assyro Babylonians at around 1000 BCE. From this cradle of civilization in Mesopotamia – in the southern part of present-day Iraq- Astronomers had built up knowledge of the celestial bodies and recorded their periodic motions. Now we are going to talk about the sub topics of history:

8.1) Discoveries

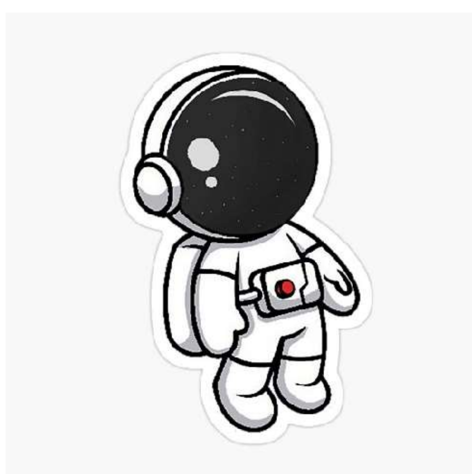
There are many discoveries of astronomy, we are going to tell you about some great discoveries related to astronomy:

1. The big bang theory- discovery is still at the starting point for exploration of the big bang. It was huge. There is now evidence of a new theory for the beginning of the entire universe. This is a huge discovery not only confirming Einstein's ideas but also the opening of a new whole way of exploring the universe. This is the all-time biggest discovery in the history of astronomy.
2. The black holes- The black holes were an amazing discovery of space. The first person to start the theory of black holes, believe it or not, was John Michell, an English countryperson. Then people searched a lot and with the help of Stephen Hawking's, they finally discovered areal black hole.

3. Telescope- Telescopes were very important invention of astronomy. Many people still think that Galileo Galilei, but it was Hans Lippershey, who invented the telescope. Hans's telescope was improved a lot until we got the telescopes, that astronomers use today. Earlier. the telescopes were used as lenses only. But Galileo Galilei brought up the idea to use it for astronomical use.

8.2) Astronauts

There are many astronauts around the world. Neil Armstrong was the first astronaut, who landed on the moon. Yuri Gagarin was the first person to cross the Karman line. There are twelve astronauts who landed on the moon; they are: Neil Armstrong, Buzz Aldrin, Pete Conrad, Alan Bean, Alan B. Shepard Jr., Edgar D. Michell, David R. Scott, James B. Irwin, John W. Young, Charles M. Duke, Eugene Cernan, Harrison H. Schmitt. There are 4 astronauts who landed on the moon and are still alive at the moment. They are: Aldrin (Apollo 11), David Scott (Apollo 15), Charles Duke (Apollo 16), and Harrison Schmitt (Apollo 17).



8.3) Scientists

There are many scientists who invented and discovered many things. Scientists of astronomy are known as astronomers. An astronomer is a scientist in the field of astronomy who focuses their studies on a specific question or field outside the scope of Earth. Now, we are going to list some famous astronomers:

1. Albert Einstein
2. Galileo Galilei
3. Sir Isaac Newton
4. Stephen Hawking
5. Edwin Hubble
6. Johannes Kepler
7. Edmond Halley
8. William Herschel

   And many more.

There are 5 types of astronomers. They are:

1. Planetary astronomers
2. Solar astronomers
3. Galactic astronomers
4. Extragalactic astronomers
5. Cosmologists

Behind this book



Adheep Ghimire

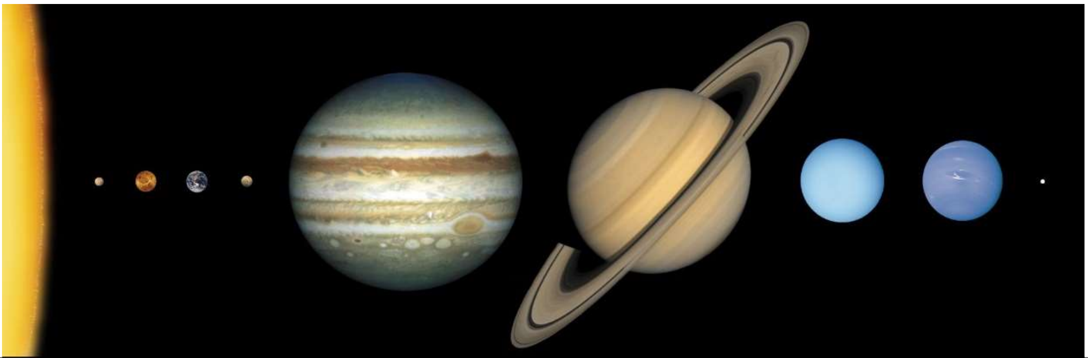


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